

What is claimed is:

1. A serial data conversion apparatus comprising:

a video signal packet conversion unit for converting a characteristic signal
5 of a video signal into a video signal characteristic packet and simultaneously
converting a video signal into a video signal packet by the characteristic signal of a
video signal, horizontal/ vertical synchronization signals, and a video clock signal;

an audio signal packet conversion unit for converting a characteristic
signal of an audio signal into an audio signal characteristic packet and
10 simultaneously converting an audio signal into an audio signal packet by the
characteristic signal of an audio signal, left/ right control signals, and an audio
clock signal; and

15 a control signal packet conversion unit for converting a control signal into
a control signal packet by an informing signal which informs a generation of a
control signal.

2. The apparatus of claim 1, wherein the video signal packet
conversion unit comprises:

20 a video signal characteristic recognizing unit for recognizing video signal
characteristics by a characteristic signal of a video signal and generating a video
signal characteristic packet;

25 a video signal control unit for generating a header and a tail of a video
signal by video signal characteristics recognized by the video signal characteristic
recognizing unit, horizontal/ vertical synchronization signals, and a video clock
signal and simultaneously controlling a storage and an output of a video signal;

a video signal memory unit for storing and outputting a video signal by a control of the video signal control unit; and

a multiplexer for selecting a header and a tail of the video signal control unit and a video signal of the video signal memory unit by a control of the switching control unit and thus generating a video signal packet.

3. The apparatus of claim 1, wherein the audio signal packet conversion unit comprises:

an audio signal characteristic recognizing unit for recognizing audio signal characteristics by a characteristic signal of an audio signal and generating an audio signal characteristic packet;

an audio signal control unit for generating a header and a tail of an audio signal by audio signal characteristics recognized by the audio signal characteristic recognizing unit, left/ right control signals, and an audio clock signal and simultaneously controlling a storage and an output of an audio signal;

an audio signal memory unit for storing and outputting an audio signal by a control of the audio signal control unit; and

a multiplexer for selecting a header and a tail of the audio signal control unit and an audio signal of the audio signal memory unit by a control of the switching control unit and thus generating an audio signal packet.

4. The apparatus of claim 1, wherein the control signal packet conversion unit comprises:

a control signal control unit for generating a header and a tail according to an informing signal of a control signal and controlling a storage and an output of a

control signal;

a control signal memory unit for storing and outputting a control signal according to a control of the control signal control unit; and

5 a multiplexer for selecting a header and a tail of the control signal control unit and a control signal of the control signal memory unit by a control of the switching control unit and thus generating a control signal packet.

5. A serial data conversion apparatus comprising:

10 a video signal packet conversion unit for converting a characteristic signal of a video signal into a video signal characteristic packet and simultaneously converting a video signal into a video signal packet by the characteristic signal of a video signal, horizontal/ vertical synchronization signals, and a video clock signal;

15 an audio signal packet conversion unit for converting a characteristic signal of an audio signal into an audio signal characteristic packet and simultaneously converting an audio signal into an audio signal packet by the characteristic signal of an audio signal, left/ right control signals, and an audio clock signal;

20 a control signal packet conversion unit for converting a control signal into a control signal packet by an informing signal which informs a generation of a control signal;

a multiplexer for switching and selecting the video signal characteristic packet, the video signal packet, the audio signal characteristic packet, the audio signal packet, and the control signal packet by a certain format structure;

25 a switching control unit for controlling a conversion of the video signal packet, the audio signal packet, and the control signal packet and controlling a

switching operation of the multiplexer;

an encoder for encoding an output signal of the multiplexer;

a parallel/ serial conversion unit for converting an output signal of the encoder into serial data; and

5 an optical signal transmitting unit for converting serial data converted at the parallel/ serial conversion unit into an optical signal and then transmitting.

6. The apparatus of claim 5, wherein the video signal packet conversion unit comprises:

10 a video signal characteristic recognizing unit for recognizing video signal characteristics by a characteristic signal of a video signal and generating a video signal characteristic packet;

a video signal control unit for generating a header and a tail of a video signal by video signal characteristics recognized by the video signal characteristic recognizing unit, horizontal/ vertical synchronization signals, and a video clock signal and simultaneously controlling a storage and an output of a video signal;

15 a video signal memory unit for storing and outputting a video signal by a control of the video signal control unit; and

20 a multiplexer for selecting a header and a tail of the video signal control unit and a video signal of the video signal memory unit by a control of the switching control unit and thus generating a video signal packet.

7. The apparatus of claim 5, wherein the audio signal packet conversion unit comprises:

25 an audio signal characteristic recognizing unit for recognizing audio signal

characteristics by a characteristic signal of an audio signal and generating an audio signal characteristic packet;

5 an audio signal control unit for generating a header and a tail of an audio signal by audio signal characteristics recognized by the audio signal characteristic recognizing unit, left/ right control signals, and an audio clock signal and simultaneously controlling a storage and an output of an audio signal;

an audio signal memory unit for storing and outputting an audio signal by a control of the audio signal control unit; and

10 a multiplexer for selecting a header and a tail of the audio signal control unit and an audio signal of the audio signal memory unit by a control of the switching control unit and thus generating an audio signal packet.

8. The apparatus of claim 5, wherein the control signal packet conversion unit comprises:

15 a control signal control unit for generating a header and a tail according to an informing signal of a control signal and controlling a storage and an output of a control signal;

20 a control signal memory unit for storing and outputting a control signal according to a control of the control signal control unit; and

25 a multiplexer for selecting a header and a tail of the control signal control unit and a control signal of the control signal memory unit by a control of the switching control unit and thus generating a control signal packet.

9. A serial data format structure comprising:

25 a plurality of video signal packets including a header and a tail for

informing a start and an end of a video signal of a first horizontal line;

an audio signal packet including left/ right audio signals;

a control signal packet including a control signal;

a video signal characteristic packet including resolution information of a

5 video signal; and

an audio signal characteristic packet including left/ right control signals of an audio signal and frequency information of an audio clock signal.

10. The structure of claim 9, wherein the audio signal packet, the

control signal packet, the video signal characteristic packet, and the audio signal

characteristic packet are formed between the plurality of video signal packets.

11. The structure of claim 9, wherein the plurality of video signal

packets are provided with a blanking header in case that a video signal is in a

15 blanking block, and are provided with an active header a in case that a video

signal is in an active block.

12. The structure of claim 9, wherein the audio signal packet, the

control signal packet, the video signal characteristic packet, and the audio signal

20 characteristic packet include a header and a tail, respectively.

13. The structure of claim 9, wherein an arrangement order of the

audio signal packet, the control signal packet, the video signal characteristic

packet, and the audio signal characteristic packet can be respectively changed.